Materials Safety Data Sheet

Titanium Nitride (Granules, Target)

1. Product and Company Identification

Product Name： Titanium Nitride
Formula： TiN
CAS: 25583-20-4
Synonyms: N/A

Recommended Use: Scientific research
Uses advised against: N/A

Supplier: UltraPurMat Group Co., Ltd
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2. Hazards Identification

Classification of the substance or mixture
Not classified as hazardous according to Regulation (EC) No 1272/2008 (CLP).

GHS Label elements, including precautionary statements
Pictogram: None
Signal Word: None
Hazard statement(s): None
Precautionary Statement(s): None

Other hazards:
According to the results of its assessment, this substance is not a PBT or a vPvB. This product does not contain any known or suspected endocrine disruptors.

3. Composition

Components	CAS	Classification （H）	Concentration
Titanium Nitride	25583-20-4	Not classified	⩽100%

4. First Aid Procedures

Description of first aid measures

General Treatment: Seek medical attention if symptoms persist.

Inhalation: Remove victim to fresh air. Supply oxygen if breathing is difficult.

Ingestion: Seek Medical Attention.

Skin: Wash affected area with mild soap and water. Remove any contaminated clothing.

Eyes: Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Indication of any immediate medical attention and special treatment needed

No data available

5. Firefighting Measures

Extinguishing media

Extinguishing Media: Use suitable extinguishing agent for surrounding material and type of fire.

Unsuitable extinguishing media: water jet (Fine powders may react violently with strong oxidizers; avoid dispersing dust into air.)

Special hazards arising from the substance or mixture

TiN is non-flammable under normal conditions. At extreme temperatures, it may decompose into $TiO_2$and NO_X.

Advice for firefighters

Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

Further information

No data available

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid generating dust during mechanical processing. Avoid breathing dust.Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8.

Environmental precautions

Isolate runoff to prevent environmental pollution.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

Reference to other sections

For disposal see section 13.

7. Handling and Storage

Precautions for safe handling

Ensure adequate ventilation. Avoid ingestion and inhalation. Avoid formation of dust. Do not get in eyes, on skin, or on clothing. Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. For precautions see section 2.

Conditions for safe storage, including any incompatibilities

Store in a cool dry place in a tightly sealed container.

Storage class (TRGS 510): Non-combustible

Store apart from materials and conditions listed in section 10.

Specific end use(s)

Apart from the uses mentioned in section 1 no other specific uses are stipulated

8. Exposure Controls/Personal Protection

Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Protective gloves (The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.)

Body Protection

Protective work clothing. Wear close-toed shoes and long sleeves/pants.

Respiratory protection

Use a respirator with type N95 (USA) or PE (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. Physical and Chemical Characteristics

Information on basic physical and chemical properties

Appearance

Form: Solid (Granules, Target)

Colour: brownish-yellow

Odor: Odorless

pH: Not applicable (solid substance)

Melting point/range: ~2950 °C

Boiling point/range: N/A (Decomposes before boiling)

Flash point: Not applicable

Evaporation rate: Not applicable (solid)

Flammability (solid, gas): No data available

Upper/lower flammability or explosive limits: No data available

Vapor pressure: No data available

Relative density:5.22 g/cm^3

Water solubility: practically insoluble

Partition coefficient: n-octanol/water: not relevant (inorganic)

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Viscosity: No data available

Other information

Molecular formula: TiN

Molecular weight: 61.88g/mol

10. Stability and reactivity

Reactivity

This material is not reactive under normal ambient conditions.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

No known hazardous reactions

Conditions to avoid

Avoid formation of fine dust and exposure to high temperatures or open flames.

Incompatible materials

Avoid strong acids, strong oxidizers, halogens, high temperatures

Hazardous decomposition products

Thermal decomposition may generate titanium oxides (TiO_2) and nitrogen gas (N_2). Not hazardous under normal conditions.

In the event of fire: see section 5

11. Toxicological Information

Information on toxicological effects

Acute toxicity

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: Not listed.

OSHA: Not listed.

There are no known carcinogenic chemicals in this product.

Reproductive toxicity

No data available

Specific target organ toxicity -single exposure

No data available

Specific target organ toxicity -repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

No data available

12. Ecological Information

Toxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects

This product does not contain any known or suspected endocrine disruptors.

13. Disposal Considerations

Waste treatment methods

Dispose of in accordance with all applicable local and national regulations. Use recovery/recycling where feasible, otherwise incineration is the recommended method of disposal. Empty containers may contain hazardous residues. Do not cut, puncture or weld on or near to the container. Labels should not be removed from containers until they have been cleaned. Contaminated containers must not be treated as household waste.

14. Transportation Information

ADR

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulation (EC) 1907/2006, REACH, Annex XIV list of substances subject to authorisation: Not applicable

Regulation (EC) 1907/2006, REACH, Annex XVII restrictions on the manufacture, placing on the market and use of certain dangerous substances: Not applicable

Regulation (EC) 1005/2009 on substances that deplete the ozone layer: Not applicable

Regulation (EC) 850/2004 on persistent organic pollutants, amended by (EU) No 2019/1021: Not applicable

Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance

16. Other information

Version: 1.0

Revision Date： 2025-10-08

Disclaimer

The information of this safety data sheet is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.